

AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all prior versions, and listings, of claims:

1           1.       (Original) A method for use in a mobile communications system having a  
2 plurality of cell segments, comprising:

3                   communicating control and traffic signaling in a frame having a plurality  
4 of time slots in each cell segment, the time slots being time synchronized among the cell  
5 segments; and

6                   transmitting control signaling in time slots adjacent time slots allocated as  
7 guard periods to protect the control signaling in a time slot of a first cell segment from  
8 interference by traffic signaling in another time slot of a neighboring cell segment.

1           2.       (Original) The method of claim 1, wherein transmitting the control  
2 signaling includes transmitting the control signaling in every other time slot of each  
3 frame.

1           3.       (Original) The method of claim 1, wherein communicating the control and  
2 traffic signaling includes communicating the control signaling in odd time slots of each  
3 frame.

1           4.       (Original) The method of claim 1, wherein each time frame includes time  
2 slots 0, 1, 2, 3, 4, 5, 6, and 7, and wherein the transmitting includes transmitting the  
3 control signaling in time slots 1, 3, and 5.

1           5.       (Original) The method of claim 1, wherein each time frame includes time  
2 slots 0, 1, 2, 3, 4, 5, 6, and 7, and wherein the transmitting includes transmitting the  
3 control signaling in time slots 1, 3, 5, and 7.

1           6.       (Original) The method of claim 1, wherein transmitting the control  
2 signaling includes transmitting one of a synchronization burst and a frequency correction  
3 burst.

1           7.     (Original) A method for use in a mobile communications system having a  
2 plurality of cell segments, comprising:

3                     defining a plurality of channels and a frame having a plurality of time  
4 slots;

5                     providing a channel reuse pattern that is based on a plurality of channel  
6 frequencies and a plurality of time groups, wherein signaling is transmitted in different  
7 time slots of the frame in corresponding time groups; and

8                     providing predetermined time slots as guard periods to reduce likelihood  
9 of interference of signaling due to overlap of time slots in neighboring cell segments.

1           8.     (Original) The method of claim 7, wherein providing time slots as guard  
2 periods includes setting the time slots to be idle.

1           9.     (Original) The method of claim 7, wherein the defining includes defining a  
2 frame having eight time slots.

1           10.    (Original) The method of claim 9, further comprising allocating control  
2 signaling to be carried in odd time slots of each frame.

1           11.    (Currently Amended) A method for use in a mobile communications  
2 system, comprising:

3                     carrying control signaling in a multiframe that includes a plurality of  
4 frames, each frame including a plurality of time slots;

5                     communicating control signaling in predetermined time slots of  
6 predetermined frames; and

7                     communicating idle periods in time slots allocated as guard periods  
8 adjacent the predetermined time slots of the predetermined frames.

1           12.    (Original) The method of claim 11, wherein each frame includes eight  
2 time slots, and wherein communicating the control signaling includes communicating the  
3 control signaling in odd time slots of the predetermined frames.

1           13.    (Original) The method of claim 12, wherein communicating the idle  
2 periods includes communicating the idle periods in even time slots of the predetermined  
3 frames.

1           14.    (Original) The method of claim 13, wherein each frame includes time slots  
2 0, 1, 2, 3, 4, 5, 6, and 7, and wherein communicating the control signaling includes  
3 communicating the control signaling in time slots 1, 3, and 5, and communicating the idle  
4 periods includes communicating the idle periods in time slots 0, 2, and 4.

1           15.    (Original) The method of claim 13, wherein each frame includes time slots  
2 0, 1, 2, 3, 4, 5, 6, and 7, and wherein communicating the control signaling includes  
3 communicating the control signaling in time slots 1, 3, 5, and 7, and wherein  
4 communicating the idle periods includes communicating the idle periods in time slots 0,  
5 2, 4, and 6.

1           16.    (Original) The method of claim 11, further comprising communicating  
2 traffic in at least some of the frames other than the predetermined frames.

1           17.    (Original) Apparatus for use in a mobile communications system having a  
2 plurality of cell segments, comprising:  
3                   an interface unit capable of communicating with the cell segments; and  
4                   a controller adapted to control communications of control and traffic  
5 signaling in a frame having a plurality of time slots in each cell segment, the time slots  
6 being synchronized among the cell segments, the controller further adapted to define  
7 guard periods each including at least one time slot to protect control signaling  
8 communicated in a time slot from interference due to overlap of time slots in neighboring  
9 cell segments.

1           18.     (Original) The apparatus of claim 17, wherein the controller is capable of  
2 communicating packet data between a data network and a mobile unit in one of the cell  
3 segments.

1           19.     (Original) The apparatus of claim 18, further comprising a second  
2 controller capable of communicating circuit-switched traffic between mobile units in the  
3 cell segments.

1           20.     (Original) The apparatus of claim 17, wherein the controller is adapted to  
2 define a channel reuse pattern based on frequencies and time groups, control signaling  
3 being carried in different time slots of the frame in corresponding time groups.

1           21.     (Original) A method for use in a mobile communications system having a  
2 plurality of cells each divided into three sectors, comprising:  
3                 allocating a channel frequency to each cell sector;  
4                 defining N time groups;  
5                 defining a frame having eight time slots;  
6                 providing an effective  $N/(3*N)$  channel reuse pattern that is based on the  
7 channel frequencies and the plurality of time groups, wherein signaling is carried in a  
8 different time slot of the frame in each time group; and  
9                 allocating predetermined time slots in the frame as guard periods to reduce  
10 likelihood of interference of signaling due to overlap of time slots between neighboring  
11 cell sectors.

1           22.     (Original) A method for use in a mobile communications system having a  
2 plurality of cell segments, comprising:  
3                 measuring control signaling carried in one or more of a plurality of time  
4 slots of a frame in a first cell segment and in a neighboring cell segment; and  
5                 receiving control signaling in a first time slot adjacent a second time slot  
6 defined as part of a guard period to reduce likelihood of interference caused by overlap of  
7 time slots between the first cell segment and the neighboring cell segment.

1           23.    (Original) The method of claim 22, wherein the measuring includes  
2   measuring control signaling in time slots that are synchronized between the first and  
3   neighboring cell segments.

1           24.    (Original) A mobile unit for use in a mobile communications system,  
2   comprising:  
3                a transceiver to transmit and receive control and traffic signaling carried in  
4   frames each having a plurality of time slots; and  
5                a control unit adapted to receive control signaling carried in time slots  
6   adjacent idle time slots defined as guard periods.

1           25.    (Original) An article including one or more machine-readable storage  
2   media containing instructions for controlling communications in a mobile  
3   communications system having a plurality of cell segments, the instructions when  
4   executed causing a controller to:  
5                define a frame having a plurality of time slots;  
6                synchronize time slots among the cell segments; and  
7                allocate predetermined time slots as guard periods to reduce likelihood of  
8   interference of signaling due to overlap of time slots between neighboring cell segments.

1           26.    (Original) The article of claim 25, wherein the one or more machine-  
2   readable storage media includes instructions that when executed further cause a controller  
3   to:  
4                communicate over a plurality of channels with the frame; and  
5                provide a channel reuse pattern that is based on a plurality of channel  
6   frequencies and a plurality of time groups, wherein signaling is transmitted in different  
7   time slots in corresponding time groups.

1           27.   (Previously Presented) The method of claim 1, wherein transmitting  
2 control signaling in time slots adjacent time slots allocated as guard periods comprises  
3 transmitting control signaling in time slots adjacent entire time slots allocated as guard  
4 periods.

1           28.   (Previously Presented) The method of claim 11, wherein communicating  
2 idle periods in time slots comprises communicating idle periods in entire time slots.

1           29.   (Previously Presented) The method of claim 1, wherein communicating  
2 the control and traffic signaling in the frame having the plurality of time slots comprises  
3 communicating the frame having the plurality of time slots in an uplink path.

1           30.   (Previously Presented) The method of claim 1, wherein communicating  
2 the control and traffic signaling in the frame having the plurality of time slots comprises  
3 communicating the frame having the plurality of time slots in a downlink path.

1           31.   (Previously Presented) The apparatus of claim 17, wherein the controller  
2 is adapted to control communications of control and traffic signaling in the frame in an  
3 uplink path.

1           32.   (Previously Presented) The apparatus of claim 17, wherein the controller  
2 is adapted to control communications of control and traffic signaling in the frame in a  
3 downlink path.